

*INL's Independent Validation and Verification expertise combines more than 20 years of experience in software design, quality assurance and unbiased data analysis.*



## Independent Verification & Validation

*Providing unbiased software analysis & evaluation services*

**I**daho National Laboratory is an experienced leader in providing unbiased, third-party independent verification and validation (IV&V) services to private and federal organizations. Our capabilities include the ability to analyze hardware and software designs, cybersecurity processes, supervisory control and data acquisition systems, enterprise architecture and network topology from the conceptual design phase through the entire system life cycle. In addition, we provide independent advice to design engineers and management to facilitate the integration of recommenda-

tions from the development stage through quality assurance and to the end user.

### **Impartial, Value-Added**

Independence is a key feature of IV&V, and a major advantage of INL's application of this process involves professional government support and impartial product assessment. The laboratory's role as an honest broker ensures an assessment agent is not directly involved in the system's development, is not influenced by designers or developers, and provides the customer with objective opinions. Additionally, INL researchers work on a cost-re-

covery basis, eliminating the profit motive and predisposed assessment results often found in private companies.

The laboratory has tailored its traditional IV&V approach to a value-added methodology that best fits our customer's needs. In traditional methodology, the expectation is centered on a technical review of processes and products with the key purpose of identifying deficiencies. At INL, the traditional process is extended to include an assessment of the potential risks and

*Continued next page*

*The Energy of Innovation*



**INL maintains a series of state-of-the-art supercomputers to enhance the accuracy and efficiency of analyzing software design.**

#### For more information

**Carl Wharton**  
(208) 526-2619  
[Carl.Warton@inl.gov](mailto:Carl.Warton@inl.gov)

**Carol Reid**  
(208) 526-1902  
[Carol.Reid@inl.gov](mailto:Carol.Reid@inl.gov)

**A U.S. Department of Energy  
National Laboratory**

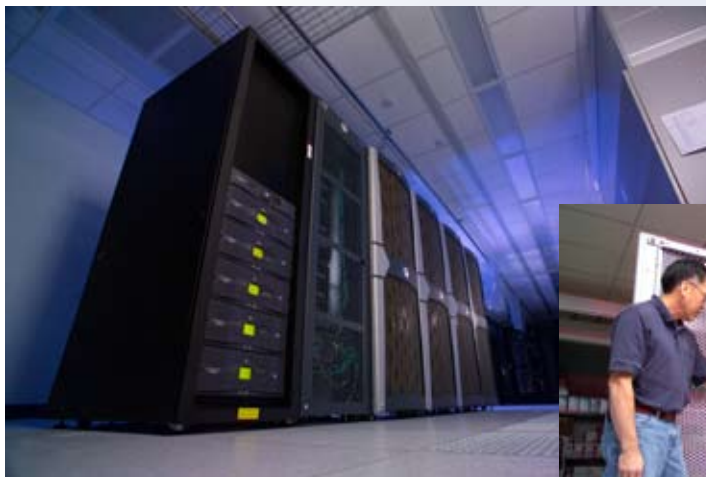


*Continued from previous page*

impacts to efficiency, and to provide mitigation strategies. This approach not only tests final products, but evaluates intermediate products, ensuring that potential faults are addressed and corrected

ceptual design, prototyping development, production, testing and support, and independent laboratory testing. Our evaluation process ensures system interface and impact are feasible and have techni-

Department of Defense, the Department of Energy and private industry, including long-term support to the National Guard Bureau's Reserve Component Automation System (RCAS), and the Yucca Mountain Project Management Office. INL researchers actively participate as members of source selection evaluation boards and as expert evaluators during com-



early and in the most cost-effective manner.

#### **Comprehensive Process**

INL's expertise has been used in software environments that utilized rapid applications development, spiral development, rapid prototyping and traditional waterfall life-cycle methodology. Our researchers perform proactive, up-front software validation on projects with the goal of implementing an object-oriented approach for software development and reuse as well as a structured design approach to software development that promotes teamwork and customer interaction, and facilitates a no-surprises style of reporting.

Our technical expertise in a broad range of scientific and engineering disciplines helps evaluate developments in con-

cal integrity. Our approach provides clear, complete and consistent results that do not conflict with other program constraints.

The laboratory also assesses designs to ensure that requirements are appropriately satisfied and monitors development activities to ensure compliance. Vendor documentation is examined for process requirements, and document reviews are conducted and produced for each phase of the system life cycle. Finally, researchers perform independent testing to validate the configuration integrity of the entire system infrastructure.

#### **Proven Expertise**

With more than 20 years of IV&V experience, INL has provided support to the

petitive demonstrations. We evaluated operating systems, communications, databases, integrated logistics support, site surveys, infrastructure, system and software design and deployment. Other customers within the Department of Energy and businesses in the private sector have also benefited from INL's support.

The laboratory's independent verification and validation approach is an effective management tool that has the proven benefits of identifying problems early in the life cycle and facilitating project communication and coordination while ensuring that the customer's requirements are satisfied.